



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/636,161

08/07/2003

Mohsen Sarraf

34-20

3605

7590 06/14/2007  
Ryan, Mason & Lewis, LLP  
Suite 205  
1300 Post Road  
Fairfield, CT 06824

EXAMINER

NGUYEN, PHUONGCHAU BA

ART UNIT

PAPER NUMBER

2616

MAIL DATE

DELIVERY MODE

06/14/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/636,161	Applicant(s) SARRAF ET AL.	
	Examiner Phuongchau Ba Nguyen	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 3-29-07.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-14,16-18 is/are rejected.
- 7) ☒ Claim(s) 6 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:  |

*Claim Rejections – 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1, 2–5, 7–14, 16–18 are rejected under 35 U.S.C. 102(e) as being anticipated by Sinha (6,292,917).

Regarding claim 1,

Sinha (6,292,917) discloses a method of transmitting a plurality of sub-streams in a multi-stream digital audio broadcasting system, said method comprising the steps of:

allocating a unique frequency partition to each of said sub-streams (102&104 L, 102&104 U-fig.2) for a plurality of consecutive time slots (figs.1-2, see also, col.2, line 55; col.3, line 22, col.3, line 60-col.4, line 7);

allocating a unique time slot to each of said plurality of sub-streams (col.3, line 22, col.3, line 60-col.4, line 7; col.5, lines 7-16); and

transmitting said sub-streams to a receiver (fig.5).

Regarding claim 2, Sinha further discloses wherein said sub-streams include at least two core streams (sub-streams I, figs.1-2) and at least two enhancement streams (sub-streams II, figs. 1-2).

Regarding claim 3, Sinha further discloses wherein said core sub-streams (sub-streams 1, figs.1-2) have a maximum separation in the time domain (separated by rate for time domain in fig.2, col.5, lines 14-col.6, line 19).

Regarding claim 4, Sinha further discloses wherein said multi-stream digital audio broadcasting system is an all-digital IBOC (In-Band-On-Channel) system and said core sub-streams (sub-streams 1, figs.1-2) have a maximum separation in the frequency domain (separated by FM signal-100, figs. 1-2; col.4, line 29-col.5, line 17 & col.6, lines 20-39).

Regarding claim 5, Sinha further discloses wherein said multi-stream digital audio broadcasting system is a hybrid IBOC (In-Band-On-Channel) system and said core sub-streams are transmitted in the frequency domain in the innermost side bands (figs.1-2, sub-streams 1 as core/innermost sidebands).

Regarding claim 7, Sinha further discloses wherein said multi-stream digital audio broadcasting system is an all-digital IBOC (In-Band-On-Channel) system

and said core sub-streams (sub-streams II) are separated by a data stream (FM signal 100, figs.1-2).

Regarding claim 8, Sinha further discloses wherein no two sub-streams (sub-streams I & II) associated with the same audio segment are transmitted in the same time slot (interleaved in time, see col.2, line 64-col.3, line 22, figs.1-2).

Regarding claim 9, Sinha further discloses wherein a unique time slot is allocated to each of said sub-streams by introducing a delay between each of said sub-streams (col.2, line 58-col.3, line 20; col.9, lines 48-60).

Regarding claim 10,

Sinha discloses a transmitter (fig.5) in a multi-stream digital audio broadcasting system, comprising:

a modulator (216) for allocating a unique frequency partition to each of two or more sub-streams for a plurality of consecutive time slots;

a delay circuit (212, 214) for allocating a unique time slot to each of said two or more sub-streams (see also col.9, lines 48-60); and

a transmitter (202) for transmitting said two or more sub-streams to a receiver (204).

Regarding claim 11, Sinha further discloses wherein said two or more sub-streams include at least two core streams (sub-streams I) and at least two enhancement streams (sub-streams II) (figs.1-2).

Regarding claim 12, Sinha further discloses wherein said core sub-streams (sub-streams I) have a maximum separation in the time domain (col.9, lines 48-60).

Regarding claim 13, Sinha further discloses wherein said multi-stream digital audio broadcasting system is an all-digital IBOC (In-Band-On-Channel) system and said modulator provides a maximum separation of said core sub-streams

(sub-streams I) in the frequency domain (figs.1-2; col.4, line 29-col.5, line 17 & col.6, lines 20-39).

Regarding claim 14, Sinha further discloses wherein said multi-stream digital audio broadcasting system is a hybrid IBOC (In-Band-On-Channel) system and said modulator allocates said core sub-streams in the frequency domain to the innermost side bands (figs.1-2, sub-streams I as core/innermost sidebands).

Regarding claim 16, Sinha further discloses wherein said multi-stream digital audio broadcasting system is an all-digital IBOC (In-Band-On-Channel) system and said core sub-streams (sub-streams I) are separated by a data stream (FM signal 100, figs.1-2).

Regarding claim 17, Sinha further discloses wherein no two sub-streams associated with the same audio segment are transmitted in the same time slot (interleaved in time, col.2, line 57-col.3, line 22; col.4, lines 2-19).



Regarding claim 18, Sinha further discloses wherein a unique time slot is allocated to each of said two or more sub-streams by introducing a delay between each of said two or more sub-streams (col.2, line 58–col.3, line 20; col.9, lines 48–60).

*Allowable Subject Matter*

3. Claims 6 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chen (6,347,122); Milbar (6,985,537); Sinha (6,405,338);

Mansour (6,353,637); Laneman (6,430,724); Norr (7,085,377)

*Response to Arguments*

5. Applicant's arguments filed 3-29-07 have been fully considered but they are not persuasive.

A/. Applicant argued that Sinha does not disclose or suggest "allocating unique frequency partitions to each of the substreams for a plurality of consecutive time slots, and allocating a unique timeslot to each of the plurality of substreams".

In reply, applicant is directed to figures 1 and 2 wherein the low sideband 102L and 104L, and the upper sideband 102U and 104U, and the sets of sidebands 102L, 102U, 104L and 104U (i.e., 102L & 102 U and 104L & 104U are substreams) correspond generally to frequency channels 102, 104 , wherein the channels may correspond to different frequency bands, timeslots, see col.3, lines 5-6 & col.6, lines 24-26.

6. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuongchau Ba Nguyen whose telephone number is 571-272-3148. The examiner can normally be reached on Monday-Friday from 10:00 a.m. to 6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone numbers for the organization where this application or proceeding is

Art Unit: 2616

assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.



Phuongchau Ba Nguyen  
Examiner  
Art Unit 2616



HUY D. VU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600